Device and method for continuously producing emulsions or dispersions

BACKGROUND OF THE INVENTION

[0001] The invention relates to a device and to a method for continuously producing emulsions or dispersions, particularly for producing nanoemulsions.

[0002] Emulsions and dispersions are generally produced batchwise in agitated reactors. In that case the requisite amounts of the ingredients are metered into a mixing vessel and emulsified or dispersed with high agitated input. Use is made generally for this purpose of high-performance agitators which permit the generation of cavitation forces. Alternatively a high-pressure homogenization is carried out. Monitoring of the emulsions and dispersions produced, and of the method, takes place generally only on the finished product of the corresponding mixture batch. Continuous checking of the production operation is generally not possible.

[0003] Furthermore, varying the quantities of product is possible only to a very limited extent, since in the case of a batch mixer the possible batch size is situated within a narrowly limited range. The minimum batch size must not in general be less than half of the maximum batch size.

[0004] With a view to sterile processing as well a batchwise method is problematic. In general, work takes place in open agitated tanks, so that contamination from the outside cannot be excluded. Where operation is to take place with air excluded, a costly and inconvenient method is needed for evacuating the mixing vessels in order to work under reduced pressure.

[0005] Furthermore, batch mixing devices must be of large design in order to be able to generate appropriate amounts of product. This involves considerable investment costs. Moreover, the high agitated input leads to high energy costs.